



**COLLEGE OF HEALTH SCIENCES  
SCHOOL OF PUBLIC HEALTH  
BARRIERS AND FACILITATORS TO WASH UPTAKE IN PUBLIC PRIMARY  
SCHOOLS IN BUTEMBA SUB-COUNTY KYANKWANZI DISTRICT**

**BY**

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## DECLARATION

I, WACHA BOMU JULIUS, hereby do declare that this research dissertation on Barriers and Facilitators to WASH uptake in public primary schools in Butemba sub-county, Kyankwanzi District is my own and has never been presented to any institution of learning for any award.



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Date:

30<sup>th</sup> SEPTEMBER 2023

**20/U/23923/PS**

This report has been submitted with the approval of my supervisor



**MR. JIMMY OSURET**

Date: October 30, 2023

**SUPERVISOR**

## **DEDICATION**

I dedicate this study to the memory of my beloved father whose struggles and hard work helped to set a significant foundation in my education, my spouse Ms. Mary Gorret Apolot for the encouragement and my brother Kolyabu Steven, who tirelessly supported me both morally and financially in accomplishing my targets in life. All your efforts are greatly appreciated.



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## LIST OF ACRONYMS AND ABBREVIATIONS

DHO	District health officer
HWF	Hand washing facility
HWW	Hand washing with soap
LMIC	Low and middle-income country
SDG	Sustainable development goals
SAC	School-Age Children
STH	Soil-transmitted helminths
SEHO	Senior Environmental Health Officer
DEO	District Education Officer
DHE	District Health Educator
ADWO	Assistant District Water Officer
SEHO	Senior Environmental Health Officer
WHO	World Health Organization

## OPERATIONAL DEFINITIONS

**Sanitation;** provision of facilities and services for preventing contact with human urine and excreta.

**Hygiene;** refers to practices, actions and habits that can enhance cleanliness and promote health, such as daily hand washing, face washing, bathing, using soap and water.

**Diarrhoea;** refers to the passage of loose liquid three or more times a day.

**Diarrheal diseases;** Refers to a group of diseases in which the predominant symptom is diarrhoea.

**Excreta;** refers to mixtures of faecal matter and urine.

**Hand washing facility;** a facility or station which includes any fixed location where hand washing takes place.

**Hand washing;** a process of cleaning hands with clean water to remove germs.

**Hand washing with soap;** a process of cleaning hands with clean water and soap to remove germs.

**A fully functional WASH facility;** means the facility is in use regularly.

**Partially functional;** refers to a facility that is not regularly in use.

**Non-functional water source;** refers to a broken-down facility.

**Mortality;** is the number of deaths in a particular period.

**WASH facility uptake;** to include ownership, utilization and access

## ABSTRACT

**Background:** Water, Sanitation and Hygiene refers to the safe water supply for drinking, washing or other purposes, safe disposal of excreta, and the provision of facilities that promote hygiene in institutions. Inadequate provision of Water, Sanitation and Hygiene facilities in schools compromises learners' health and well-being by accelerating the spread of diarrheal diseases, contributing to stunting among children and increased absenteeism, ultimately affecting pupils' academic performance. This study sought to assess barriers and facilitators to ownership, access and utilization of Water, Sanitation and Hygiene facilities among public primary schools in Butemba Sub-County.

**Methods:** The study was cross-sectional in design, employing quantitative and qualitative data collection approaches. Quantitative data on access, utilisation and functionality of Water, Sanitation and Hygiene facilities was collected using semi-structured questionnaires and observation checklists, respectively, while a key informant interview guide was used to collect qualitative data. Quantitative data were entered into Epidata software and analyzed with Stata software (version 14). Frequencies and percentages were presented in tables and graphs. Qualitative data were transcribed and analyzed manually. Themes were identified and relevant quotes were used for emphasis.

**Results:** There was low utilization of Water Sanitation and Hygiene facilities, with sanitation facilities at 48.1%, and utilization of hand washing facilities was high (97.1%). However, only 18.2% of the pupils washed their hands using soap. The level of functionality of Water Sanitation and Hygiene facilities was 25% for water supply facilities, 25% for sanitation and hand washing facilities and the main barriers reported were vandalism, no Menstrual Hygiene Management facilities for the girls and inadequate funding of the Water Sanitation and Hygiene activities.

**Conclusion and recommendations:** From the study, vandalism, lack of Menstrual Hygiene Management facilities for girls and inadequate funding of Water Sanitation and Hygiene facilities were the major barriers to access and utilisation of Water Sanitation and Hygiene facilities in schools. Some of the facilitators included support towards the construction of water storage facilities to increase access to safe water. However, this was only in the selected schools. Therefore, the government needs to allocate funds towards constructing more WASH infrastructures in all public primary schools across the Butemba sub-county.

## CHAPTER ONE

### INTRODUCTION AND BACKGROUND

#### 1.1 Introduction

Water, Sanitation and Hygiene (WASH) refers to the provision of water supply for drinking, washing and other domestic purposes and includes the facilities used for the safe disposal of human excreta and hygiene facilities for health promotion. Water supply facilities include boreholes, piped water systems, rainwater and surface water. Access to WASH in educational institutions is globally recognized as a critical intervention to promote pupils' right to health and a clean environment. The existence of WASH facilities has been proven to improve health, boost educational achievement among school-going pupils and promote gender equity, which positively impacts society. However, in some institutions such facilities are lacking (UNICEF 2021).

WASH infrastructure and school services are critical in ensuring a safe and healthy learning environment where all children are envisaged to reach their educational potential. Safe Water, Sanitation, and Hygiene's impact on a child's health, retention and school performance are profound (UNICEF 2016).

A global baseline report by (WHO 2018), indicated that up to 69% of schools had an improved drinking water source, although nearly 570 million children worldwide still lacked a basic drinking water service at their school. In the same report, 66% of schools were identified as providing sanitation service with an improved, safely usable single-sex sanitation facility. However, an estimated 620 million children still lacked a basic sanitation service at their school, which could still negatively impact health and learning outcomes, particularly for the girl child. The same report further revealed that although 53% of schools had hand washing facilities with soap and water, it was estimated that over 850 million children lacked a basic hand washing service at their school.

## 1.2 Background

Access to washing facilities remains a challenge across the African continent, a study conducted in six African countries showed that rural schools within the countries of Zambia, Ethiopia, Kenya, Mozambique, Rwanda and Uganda had inadequate access to essential WASH services, access to basic sanitation and hygiene services was reported to be the lowest among the facilities (Morgan et al 2017). The WASH deficiencies in rural schools found in these countries have associations with adverse health outcomes and poor school attendance. The reasons for these inadequacies were that some schools did not have WASH programs, lacked funding for WASH activities and had no budgets to implement WASH plans /policies.

In Uganda, diarrhoea is a significant childhood killer disease, killing 33 children daily (CDC 2019). Early childhood diarrhoea is deadly and contributes to Uganda's high levels of stunting, affecting children's cognitive development and performance at school (WHO 2021).

Several infections can result from poor access to safe WASH facilities, for example, drinking unsafe water causes illnesses such as diarrhoea, typhoid and parasitic infestations, which are spread when untreated excreta contaminates ground and surface water. Some of these are the most common sources of water for schools (WHO 2021). School-going children get sick and abstain from school and other academic programs. Worse still, those infested with worms can end up malnourished with associated effects like stunting and mental retardation, affecting the pupil's academic performance (Namata and Mujuni 2015).

Meeting the WASH standards in Schools is critical to children staying in school, performing well academically and keeping healthy, among other benefits. However, according to the Ministry of Water and Environment (2017) and the Ministry of Education and Sports School WASH data (2016), the situation of WASH facilities among the Schools in Uganda does not align with Uganda's national standards, an indicator that there is need of many efforts to be put in by mother ministries to ensure that they construct the necessary WASH infrastructure to be easily accessed and utilized by the pupils in all institutions of learning in Uganda. According to statistics from (the National micro planning handbook for Water, Sanitation and Hygiene (WASH) in public primary and secondary Schools in Uganda, 2019), it showed that pupil-stance ratio was fair among girls and bad among boys, standing at 68:1 and 72:1 for girls and boys respectively. According to this

report, access to WASH facilities in primary schools was generally fair, and it indicated that access to the water supply was 58% and hand washing facilities at 56%. An extract of data from the same report showed that the WASH situation among the public primary schools in Kyankwanzi District was below half and indicated that access to the water supply was 42.1%, hand washing facilities at 39.5% and pupil stance ratio at 34.2% across all schools in the district. Data on the utilisation and functionality of WASH facilities were scanty.

This study, therefore, focused on assessing the barriers and facilitators to ownership, access and utilization of WASH facilities in the public primary schools in the Butemba sub-county, Kyankwanzi district.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Introduction

This chapter describes available literature regarding WASH facilities. It is divided into access, ownership and utilisation of WASH facilities, barriers to ownership, access, utilisation and conclusion.

#### 2.2 Access and utilisation of WASH facilities

WASH facilities in schools are vital components that help give children their rights and facilitates the achievement of sustainable development goals (SDGs), SDGs number 3 and 6. Particularly, the learning and development of children can only be best when the environment provides improved and accessible water, sanitation, and proper hygiene (Sarkingobir et al 2019). Providing safe WASH is not only a prerequisite to health but also contributes to child well-being, livelihoods, school attendance and dignity. It helps to create resilient communities living in healthy environments (WHO 2021).

WASH facilities play a key and cardinal role in improving health and wellbeing, however, millions of children go to school with no drinking water facilities, no toilets and no soap for hand washing, making learning difficult with devastating consequences for their future. Whenever children lack access to clean water, it affects their health, nutrition, education and learning abilities, hence impacting many aspects of their lives (UNICEF 2021).

As a concept in rural education, WASH has strategically offered interventions towards providing schools with safe drinking water, improved hygiene and sanitation facilities. It is a whole package that entails both software and hardware activities, for example, creating awareness through sensitization on activities, roles and responsibilities that target school WASH clubs, promotion of hygiene education, behaviour change and environmental management through tree planting and the construction, maintenance and use of pit latrines, setting up of hand washing facilities in schools and communities, safe water collection, transportation and storage. Generally speaking, the objectives of WASH projects are to try and create a linkage between water, sanitation and hygiene among pupils and providers of school services. Therefore the provision of WASH



facilities within schools should not be neglected or else the children who are not in proximity to these facilities will suffer for the rest of their life since access and utilization will be hindered either by causing continued suffering or increased vulnerability to suffering from water and sanitation related diseases. Therefore, access to, and effectively utilizing these facilities within school premises is paramount (Chileshe et al 2019).

One of the Children's rights is free access to basic facilities such as pit latrines, safe drinking water sources, clean environments, safer spaces and basic information on hygiene (UNICEF 2021). Having these conditions available at school helps stimulate learning among children and get them acquainted with better concepts and practices on sanitation and hygiene. These at a particular stage can be adopted and replicated at their respective households in the due course, with the main goal of promoting hygiene and sanitation. (Tiswin et al 2019).

According to a joint monitoring study conducted by WHO, it identified that 71% of schools had a basic drinking water service, 14% had a limited service, and 15% had no service it was also reported that 546 million children lacked a basic drinking water service at their school, including 258 million whose school had an improved source with no water available, and 288 million whose school still had no water service. Coverage of basic drinking water services ranged from 46% in low-income countries to 100% in developed countries.

According to a study conducted in rural central Kazakhstan to assess the challenges of access to WASH in low-income countries, the author highlighted that thorough and effective implementation of the SDGs is important for ensuring the provision of safe water, sanitation and hygiene among schools in low low-income countries by 2030, however, the only gap that remains is that most schools lack adequate and already constructed WASH infrastructure and for that matter therefore, there is need to turn this challenge into an opportunity (Bolatova et al 2021).

Access to improved water and sanitation facilities alone does not necessarily improve health, but this should be accompanied by good behavioral practices that ensure proper utilization of these facilities. There is now very clear evidence that shows the importance of good hygienic behavior towards disease prevention, for example, hand washing with clean water and soap after defecating or before eating is key in preventing many diseases. Hygiene and sanitation-related diseases are a huge burden in developing countries, leading to increased morbidity and mortality, especially among children. The gastrointestinal diseases have been reported to spread quickly among pupils

in schools as a result of deteriorating hygiene standards and are considered to be the main contributors to mortality among children globally, causing one in ten child deaths. Although most deaths are in children aged  $\leq 5$  years, the burden of disease in school-aged children is still considerable and contributes to high rates of school absenteeism (Weaver et al 2016). Research has indicated that motivational factors significantly lead to improved behaviour change, as a result pupils should be trained in basic hygienic practices, encouraged to be members of school hygiene and sanitation club and schools should organize exchange visits to model schools, as well as involve parents (Assefa and Kumie 2014).

A study conducted around selected schools in Kampala City showed that 92% of schools had usable latrines, however, the pupil-to-stance ratio did not meet national standards. The national standards according to Ministry of Education and Sports stipulate that 1 latrine stance should serve up to 40 pupils, however, in this study they found out that most schools were below standards with 1 stance serving up to 132 pupils (Kimbugwe et al 2018). Hand washing facilities were available but utilization was limited by lack of soap or water, some were non-functional due to vandalism by nearby community members who had unrestricted access to the school premises at all times.

Intestinal parasitic infections still pose one of the major public health problems, and according to available literature, about 3.5 billion people suffer due to infestations with parasites, which may include among others *Ascaris lumbricoides*, hookworms, *Trichuris trichiura*, *Giardia lamblia*, *Entamoeba histolytica* and *Schistosoma* which are the most common species of intestinal parasites globally, the larger extent lies in the developing countries and mainly concentrated among school-age children (Alemu et al 2019).

### **2.3 Barriers and Facilitators to Access and Utilization of WASH Facilities**

In Africa, 62% of all deaths are caused by infectious diseases involving the faecal-oral route, where various pathways potentially transmit faecal matter from an infected person to a healthy one. Proper sanitation facilities are known to interrupt the transmission of faecal oral-related diseases. The burden of inadequate sanitation often falls disproportionately on the most vulnerable people, who are the children living in developing countries. Each year two million pupils die from diarrhoeal diseases, making it the second most serious killer of pupils under the age of five, which is just about the school-going age (Chilipweli et al 2021). The authors of the report went on to say

that to curb down these mortalities, safe toilet facilities should be present and accessible to all students in primary schools and other institutions of learning to promote hygiene and sanitation. Where need be these facilities should meet the physical and emotional needs of pupils.

### **Lack of WASH- infrastructure:**

The lack of WASH infrastructure in institutions greatly affected the health promotion among pupils, this can be characterized by the unavailability of basic hygiene facilities, like hand washing facilities and a poor pupil stance ratio among public schools.

In the study conducted by (Sarkingobir et al 2019), it indicated that lack of WASH infrastructure intended to address hand washing and menstrual hygiene, were all considered barriers to sustainable hygiene practices, these mainly affected girls that had reached menstruation period in such a way that they were unable to easily access sanitary pads, and other facilities to promote hygiene. Furthermore, this could make some of the girls to miss school more especially during their menstruation days. Additionally, many infections start when hands are contaminated with disease-causing organisms, which happens after using the toilet, coughing or blowing ones' nose, getting in contact with garbage and touching other contaminated surfaces. Such diseases include diarrhoea, pneumonia and statistically, these diseases alone claim an estimated 1.7 million lives of children every year. A cross sectional study conducted in Ghana confirmed that most school children fall prey of this due to unavailability or lack of access to friendly, easy-to-use hand washing facilities, enablers such as soap, clean towels and clean running water. When children wash their hands with soap after using the toilet or before eating, they reduce the risk of getting diarrhoea by more than 40% (Dajaan 2018). Proper hand washing helps reduce the spread of preventable diseases, improves school attendance and contributes to healthy development of children by keeping them in school.

In a related study, it was also acknowledged that girls who have reached their menstruation period are regularly affected by inadequate access to MHM facilities. Menstruation comes with the need to use the facilities more frequently for privacy and cleanliness to ensure good personal hygiene. The absence of washrooms and such facilities as buckets and sanitary pads to enable girls to use them while cleaning themselves has compromised their hygiene and forced many girls to absent

themselves from school, affecting their academic performance. Worse still there was no ideal means to dispose off the wastes generated as a result of used sanitary pads (Kimbugwe et al 2018).

In another study carried out in selected schools in Northern Uganda by (Namata and Mujuni 2015), 95% of schools had access to a toilet facility while 5% were using old and filled-up latrines that could pose risks to pupils and needed to be demolished. However, the pupil stance ratio was reported to be very high at 102:1, beyond the recommended national standard of 40:1 as per the Ministry of Education and Sports (2016). The findings further revealed that utilisation of the WASH facilities was hindered by the fact that there was no separate latrine for the staff and this meant that pupils shared the same latrine stances with their teachers.

In a similar study by (Kimbugwe et al 2018), the authors revealed that there was less provision of WASH infrastructure among schools which compromised the WASH indicators such as the pupil stance ratio standards. This study for example reported that pupil stance ratio was 132 pupils per every 1 stance, which was far beyond the recommended standards of 40 pupils per 1 latrine stance. This limited the effective utilization of pit latrine/toilet facilities, resulting in overcrowding and competition for the few available latrine stances and, to a great extent, forced many of the pupils to practice open defecation.

In a study conducted in the Kintampo Municipality of Ghana, the findings showed that nearly half of all schools did not have basic hygiene services, and one in every three primary schools visited lacked basic water and sanitation facilities, which directly limited the pupils to get access to such services effectively. Children could not access the facilities to wash their hands, which accelerated the risks of re-infection with diarrhoeal diseases if they ate food without performing the act, and furthermore reported that diarrhoea was one of the leading causes of death, killing 33 children per day (CDC 2019). In order to prioritize safety, it is important to promote the practice of children washing their hands with clean water and soap consistently. This should be done after using the pit latrine and prior to consuming any food while at school. (Dajaan et al 2018).

Many schools in low income countries have inadequate access to water supply facilities, sanitation and hygiene promotion facilities. Studies have shown that there is inadequate provision of WASH infrastructures at their schools, only 35% of schools or less had hand washing facilities and were able to practice hand washing with soap and water. It is also documented that hand washing in

rural schools is less practiced compared to schools in the urban areas in most developing countries, Uganda inclusive (McMichael 2019).

### **Knowledge gaps on the utilization of WASH-facilities:**

Knowledge gaps also existed, more especially among the learners concerning the ideal and proper ways of how to use the WASH facilities. In an assessment conducted to find out the knowledge levels as regards hand washing techniques among the school going children, it was revealed that pupils lacked knowledge on techniques of hand washing, even though most pupils universally agreed and appreciated the importance of routine and regular hand washing (Khan et al 2021). This meant that the behaviour was minimally practiced and less attention was drawn towards the critical hand washing moments. Therefore, there was need for effective health education on the importance of hand washing among pupils at school as a means to promote the behavior.

If properly practiced, hand washing with clean water and soap effectively prevents communicable diseases. It is essential for children because they are more vulnerable to infections acquired from unwashed hands and also due to their unhealthy behaviors.

In a study conducted by Dajaan, it was revealed that there was inadequate knowledge on the practice of hand washing among school children. Although the authors acknowledged the importance of hand washing as far as preventing diseases is concerned, still minimal hand washing practice with soap during critical moments that is to say, before and after eating, after visiting toilet facilities, after handling garbage and when hands get very dirty was being practiced (Dajaan et al 2018).

The practice of hand washing using available technologies, such as the tippy tap is very effective in preventing most faecal oral diseases among school-going children. This is because pupils are more vulnerable when exposed to infectious agents through ingestion of germs that colonize unwashed hands, contaminated food and drinks. Promotion of good hygienic practices like hand washing using functional tippy taps is key in preventing and controlling most communicable diseases, (Mbakaya et al 2020).

A systematic review conducted to assess the use, adoption and effectiveness of tippy taps emphasized the importance of hand washing in combating infections, including frequent global

outbreaks of infectious diseases such as COVID-19 and Ebola. The findings of this review suggested that access to, and utilization of hand washing facilities to wash hands was key and crucial in preventing infections by properly using tippy taps that emerged as a cost effective, easy-to-use among several communities, schools and other institutions. This technology has many advantages when correctly used. For example, it is inexpensive and easy to construct since it uses locally available materials, entertaining for children, water economical and convenient to use as it is usually constructed near the pit latrine so that pupils can easily access it to wash their hands immediately after defecation, before eating meals at school among others. In the same review, they indicated that tippy-taps are more likely to be adopted by participants of all age brackets. Therefore, there is need to embrace tippy-tap technology for hand washing because it has great potential to improve health outcomes of people living in resource limited settings where water borne diseases are common (Mbakaya et al 2020). The practice of hand washing during the most critical moments is key and one of the most effective avenues of removing and preventing the spread of germs. Good hygiene does not only allow children to stay healthy and prevent the spread of infectious diseases, but also ensures that pupils stay in school and do not miss days without studying.

In the quest to improve the WASH levels among institutions, schools ought to adapt to environmental cleanliness as a health promotional act. Environmental cleaning is a significant tool towards implementing IPC guidelines among schools, and as a requirement it necessitates that school managers should acquire the basic materials needed to carry out regular cleaning and disinfection of their school environments. Some of the commonly cleaned facilities within the school environments include, classrooms, canteens, sanitary facilities and playgrounds.

A survey conducted in Gabon assessed the effectiveness of the environmental cleaning. By assessing the availability and provision of basic cleaning materials by the relevant school authorities, it was revealed that few schools had national data on environmental cleaning, and further found out that although three quarters of schools had brooms, only half of them had liquid detergents and even fewer schools had soap, gloves, boots, shovel or rake. More than one in six schools reported that they had none of these materials available to enhance the environmental cleaning (WHO 2021). The lack of cleaning materials in one way or the other limited effective implementation of the environmental cleaning as a major key component in IPC.

Parasitic infections are on the increase and often reported to affect pupils in schools, a study conducted in Ethiopia specifically focused on status of intestinal parasitic infections and associated factors among primary school children in Birbir Town, it showed that up to 81 million people lived in endemic areas of this scourge. The existence of parasitic infections among pupils indicates poor and inappropriate disposal of human excreta (Alemu et al 2019). This being worse in schools further escalates the infestation of intestinal parasites among children, hence accounting for about 25.3 million school-age children (SAC). Studies also indicated that soil-transmitted helminthes (STH) such as *A. lumbricoides*, *T. trichuria* and hookworms have been associated with growth retardation and impairment in cognitive development, anemia and vitamin A deficiency.

### **Poor Operation and Maintenance:**

Poor operation and maintenance of WASH infrastructure by the administration or users of the facilities at schools resulted into non-functionality, and this in most times lead to their deterioration and poor state of repair. Reports also showed an increase in the vice of Vandalism of WASH facilities by communities surrounding the schools, the tress passers steal components and parts of the facilities which has greatly contributed to the numerous barriers towards effective operation, maintenance, functionality and sustainable WASH facilities among several institutions as indicated in the study conducted by (Sarkingobir et al 2019).

In a related study by (Kimbugwe et al 2018), revealed that among the barriers to WASH implementation was lack of clear operation and maintenance plans by the school administration among the schools where the assessment was done. This in the end hindered proper utilization of some WASH facilities such as sanitation facilities. Failure to replace broken doors at the toilet facilities affected the utilisation of these facilities because privacy was compromised.

In 2016, the Ministry of Education and Sports (MoES) conducted a school WASH mapping exercise with support from UNICEF, Water for People and Water Aid. The report painted a worrying situation in schools that should be an issue of concern to the government and development partners (MoES 2016). Some of the barriers pointed out included, poor WASH infrastructure, poor hand washing practices in the schools, Operation and Maintenance was lacking and this being evidenced by no single school having an operation and maintenance plan, just in case any of the facilities or fittings broke down, parents as key stakeholders had minimal

engagements, participation and involvement in most of the school health and WASH related activities hence affecting sustainability. Lack of usable latrines/toilets and washrooms to cater for the girls in school during their menstruation period often resulted in many girls missing school or dropping out of school and only returning after their periods.

Also noted was that some schools had limited access to water and the nearest water point was beyond two kilometers away from the school hence limiting access to water supply facilities. As a result, this compromised the general cleanliness of the latrines and always remained dirty for most of the time. Absence of the WASH facilities meant that pupils would turn to open defecation and urination hence making the pupils vulnerable to disease transmission (Namata and Mujuni 2015).

### **Unfavourable policies, standards and guidelines:**

Lack of standards, guidelines and manuals for WASH in Schools was also noted to be among the barriers to the utilization of WASH facilities although minimum construction standards existed, little was standardized when implementing WASH in Schools. Absence of training manuals for WASH volunteers like the student health clubs, teachers who are put in charge of sanitation-related aspects at schools, together with leaders of sanitation-related committees highly limited the creation of awareness about good hygiene and sanitation practices (Sarkingobir et al 2019).

A study conducted among public primary schools in Ghana showed that most of the schools had functional toilets, urinals and hand washing facilities, however nearly half of the WASH facilities were substandard, in dire conditions and in terrible shape. Some were non-functional and these conditions somewhat created barriers to utilization and forced pupils to practice open defecation (Tiswin et al, 2019). Furthermore, other WASH facilities meant for menstrual hygiene management or disability-friendly facilities were also non-existent, implying that the girls who were in their menstruation period and the pupils with disabilities could not easily access the facilities and hence this infringed on children's rights to health and eventually contributed to absenteeism among these categories of pupils. This, therefore, called for the need for behaviour change communication with an emphasis on functionalizing WASH facilities, proper toilet usage and regular hand washing among primary school pupils to help prevent faecal-oral diseases, which power is vested in the WASH policymakers.



There were also various challenges and barriers to the sustainability of school WASH services in public schools in Uganda. A study conducted in selected public primary schools around Kampala Capital City Authority (KCCA) revealed that lack of strategy and direction concerning WASH in schools hindered effective implementation and utilization of WASH facilities. The findings further revealed that there was no clear system for monitoring WASH parameters in schools at all levels including the education sector, for that matter therefore, WASH-specific indicators for monitoring school activities and hygiene practices in schools were not captured in the education sector's performance management systems and hence were not prioritized during the planning process (Kimbugwe et al 2018).

Persons with physical disabilities faced many barriers whenever they tried to access and utilize WASH facilities, this stemmed from poor design and construction of WASH infrastructure, and unfavourable institutional policies that did not cater for the special interest groups. From a study conducted in Malawi, the authors acknowledged that people with disability faced three major barriers during access to WASH facilities: physical hardships in which they were deterred by muddy paths, narrow doors fixed at the pit latrines, or high steps which made it impossible to climb. Social forces such as stigma from other peers who discriminated them, some institutions had policies and practices that overlooked the needs of people with disabilities (Zaunda et al 2018). School authorities needed to ensure that there was inclusiveness of infrastructure to favour pupils with disabilities during the planning and construction stages of WASH facilities.

Effective WASH implementation requires a resilient and committed system of administrators and stakeholders who prioritize the WASH component at all levels, from planning and budget implementation to monitoring and evaluation stages. However, inadequate and inconsistent WASH monitoring, inconsistent data collection and management about the status of WASH facilities among the institutions hindered the planning process. Most of the relevant sectors concerned with implementation of WASH services were limited by lack of data to inform policy formulation. These among other issues were highlighted as the main barriers to service sustainability of WASH facilities in Schools, in a study conducted by (Sarkingobir et al 2019).

## **2.4 Conclusion**

In conclusion, a literature search deduced that a gap in WASH access and utilisation still exists among public primary schools, and the most highlighted issue was that hygiene promotion facilities are not always provided with water and soap. School WASH infrastructure intended to address hand washing and menstrual hygiene is ineffective due to intermittent soap and/or water supply. Vandalism of WASH facilities by unruly communities that stay nearby the school premises was cited as a barrier to sustainable hygiene practices.

Girls who have reached menstruation are disproportionately affected by inadequate WASH facilities as menstruation comes with the need to use the facilities more frequently. In the absence of provisions to WASH facilities and/or disposal of menstrual materials, girls' esteem is affected and hence increase in absenteeism.

## CHAPTER THREE

### PROBLEM STATEMENT, JUSTIFICATION, RESEARCH QUESTIONS AND CONCEPTUAL FRAMEWORK

#### 3.1 Problem statement

WASH facilities take center stage as far as improved sanitation in schools is concerned. Their existence contributes to a reduction in diseases among school-going pupils. According to the Ministry of Water and Environment's sector performance report (2017) and the Ministry of Education and Sports school WASH mapping (2016), the situation of WASH in public primary schools in Uganda does not meet national standards. There should be separate toilets for all girls, boys and children with disabilities. Every 1 latrine stance should serve 40 pupils, however, this is the opposite because this has almost doubled today whereby one (1) latrine stance serves up to Seventy one (71) pupils (MoES 2016). In a related study, 56% of primary schools in Uganda had access to water supply and hand washing facilities (MoES 2019). In Kyankwanzi district 42.1% of primary schools had access to water supply and only 39.5% had access to hand washing facilities (MWE 2019). This makes it impossible for the pupils to be able to practice hand washing, and to a greater extent, effective utilization of these facilities is always limited by lack of soap and water. This barrier has manifested more among rural schools than in urban areas in Uganda (McMichael 2019). This situation has led to increased prevalence of diarrhoeal diseases, continuous absenteeism from school, low school attendance and low self-esteem among the girls during their menstruation period (Kimbugwe et al 2018). Poor sanitation and hygiene have been known to be disastrous and impacts the health of school-going children including adolescents because of the enormous risks to the spread of diseases.

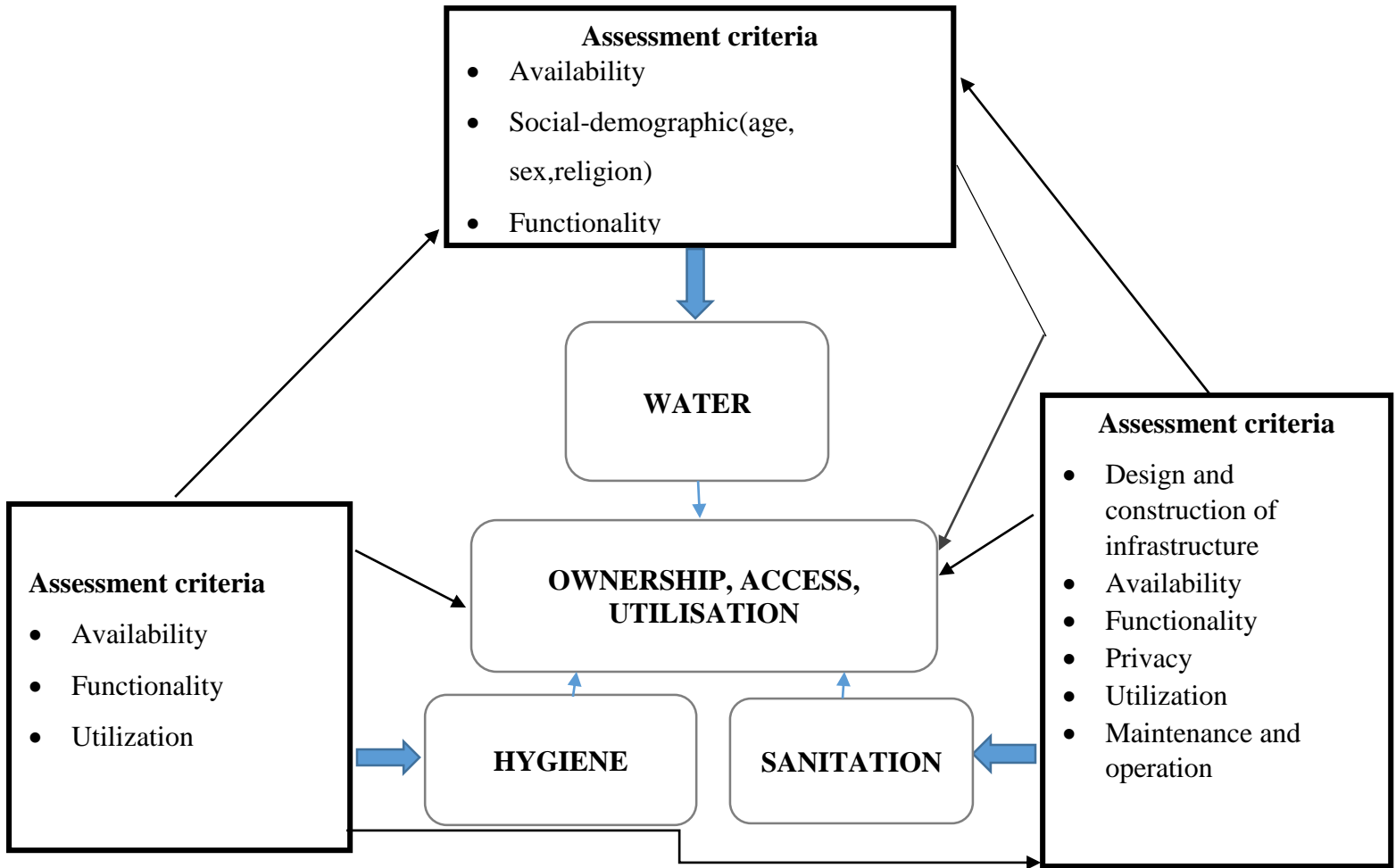
Several interventions have been put in place to improve on the WASH situation in public primary schools for example, provision of water supply facilities such as RWHT, provision of hand washing facilities near pit latrines, emphasized a daily cleaning schedule for all the WASH facilities at school, distribution of hygiene education materials to schools, inter-school WASH competitions and health parades organized and rewards given to the cleanest schools as supported by some WASH implementing partners like Child fund, (DEO 2022).

Even with the above interventions in place, the WASH in schools is still poor and wanting. Few studies have been conducted to specifically look at the barriers and facilitators to access and utilization of WASH facilities in public primary schools in rural sub-counties of Uganda. Understanding barriers and facilitators will guide in developing suitable interventions that enhance promotion and planning for WASH in public primary schools and mobilize resources to counteract these challenges. This study therefore assessed the barriers and facilitators to ownership, access, utilization of WASH facilities in public primary schools in Butemba Sub County, Kyankwanzi District.

### **3.2 Justification of the problem**

Institutionally, cases of children missing out on school time have increased. Reports have associated the cause of absenteeism to rampant diarrhoeal diseases among school-age-going children. The sick children are forced to spend much time at home receiving treatment until the diseases get cured. Continued absenteeism has led to poor academic performance among the children and to some extent diarrhoeal illnesses have also escalated school drop outs among the children in most public primary schools. Understanding the barriers and facilitators to ownership, access and utilization of WASH facilities helped develop interventions towards the prevention and management of WASH related illnesses among children in schools. This study also contributed towards achievement of the sustainable development goals (SDGs) specifically SDGs 3 and 6 which emphasize good health and wellbeing of children and provision of clean water and sanitation respectively. Such environments enhance learning and development of children and improves school attendance. Findings from this study also will help in strengthening the country policy that states that every school should be provided with a safe water source, for example, a RWHT, located within the school environment for children to collect clean and safe water for drinking and other purposes to meet the 1.5 liters required daily for learners and staff. Separate latrines for girls, boys and children with disabilities may also be provided with sufficient privacy as per school health building guidelines, where 1 latrine stance should be used by 40 pupils, with consideration for provision of 1 separate pit latrine stance properly constructed with ramps and hand rails to suit persons with disability. This study aimed to assess barriers and facilitators to uptake of WASH facilities in public primary schools in Butemba Sub County, Kyankwanzi District.

### 3.3 Conceptual frame work



**Figure 1: Conceptual frame work**

**Adapted from (Bolatova Z et al 2021) with modifications**

#### **Narrative**

Access and Utilization of WASH facilities can be limited by design, construction and location of the WASH infrastructure in place. The design and construction of WASH facilities must be in such a way that they are within reach, and located not too far away, to be age-friendly, disability-friendly and the children can use the facilities individually with little effort.

Availability and functionality of the WASH facilities is paramount and if the design and construction is broken, service is inefficiently delivered, as for pit latrines, the doors should always be opened, or if they are closed by key, the key should always be available. Quality of services, in

terms of operation and maintenance of WASH equipment and infrastructure to ensure it works correctly, and adequate quality requirements should be met and offer assurances of cleanliness. Education and practices exhibited among the school staff and teachers may also play an essential role in promoting safe habits among pupils through teaching and setting a good example and; the reverse is true.

### **3.4 Research questions**

1. What is the level of ownership of WASH facilities in the selected public primary schools in Butemba Sub-county?
2. What is the level of functionality of the WASH facilities in public primary schools in Butemba Sub-county?
3. What are the barriers and facilitators to accessing and utilizing WASH facilities in public primary schools in Butemba Sub-county?

## **CHAPTER FOUR**

### **OBJECTIVES**

#### **4.1 Broad Objective**

To assess barriers and facilitators to ownership, access and utilization of WASH facilities among pupils in the public primary schools, to inform evidence-based and effective interventions in reducing diarrhoeal diseases and increase school attendance among all children attending school in Butemba sub-county, Kyankwanzi District.

#### **4.2 Specific objectives**

1. To assess the utilisation level of WASH facilities in public primary schools in Butemba Sub-county, Kyankwanzi District.
2. To assess the functionality of WASH facilities in public primary schools in Butemba Sub-county, Kyankwanzi District.
3. To determine the barriers and facilitators to ownership, access and utilization of WASH facilities among public primary schools in Butemba Sub-county, Kyankwanzi District.



## **CHAPTER FIVE**

### **METHODOLOGY**

#### **5.1 Study area**

The study was conducted in Butemba Sub-county, Kyankwanzi District, a typical rural area in Central Buganda region. The area has a population of 25,200 people (2020 Projected) and it covers an area of 146.2 km. The Sub-county comprises of 9 parishes with 37 villages. It is located approximately 3km off Hoima-Kiboga road along Bukwiri-Ntwetwe road (District Planning Unit 2021), the Sub-county has a total of 7 public primary schools from which the sample of my study units was selected. The study area was chosen because of the deteriorating WASH infrastructure among the public primary schools.

Some of the existing WASH facilities identified among the schools studied included, Ventilated Improved Pit latrine as the common facility for disposal of human excreta, urinals for the boys, hand washing facilities with the tippy tap as the most common type of technology, rain water harvest tanks for water supply, mainly made out of plastic and constructed out of ferro-cement materials and rubbish pit used for storage of refuse generated from the school.

#### **5.2 Study population**

The study population was pupils from upper primary classes particularly primary five, six and seven during 2023/2024 academic year. The reason for selecting these levels was that pupils could comprehend, knew many things at school and could answer the study questions.

The study also involved key informants who included four head teachers from the four selected schools, four teachers in charge of sanitation, two senior women teachers and two District officials from the health department and these were the District Health Educator and the Senior Environmental Health Officer.

#### **5.3 Study design**

This was a cross-sectional study that used both quantitative and qualitative data collection methods. Quantitative data was collected using semi-structured Questionnaires administered to pupils. Qualitative data was collected by conducting key informant interviews with head teachers or their representatives, senior woman teacher, teacher in charge sanitation at the school, and two

district officials from health office to inform the objective on the barriers and facilitators to accessing and utilizing WASH facilities.

Observation checklists were used to collect data to assess the functionality of WASH infrastructure from the four selected schools. Well designed and pretested checklists were used to collect data on the existing WASH infrastructure, the data was later analysed manually and the level of functionality of the WASH facilities per individual primary school coded per variable.

Some of the key variables observed include; availability and type of WASH facilities for example a RWHT properly constructed and installed with gutters to harvest rain water was categorized as a source of water supply. In addition, the ventilated improved pit latrine and urinals were the major technologies used for the disposal of human excreta and urine respectively. Finally, tippy taps were used for washing hands, menstrual hygiene management facilities like changing rooms, and sanitary pads used by girls during menstruation, were the key hygiene promotion facilities studied.

Secondly the level of functionality of WASH facilities was assessed as well to ascertain whether they operated effectively. For example, functionality of hand washing facilities was deduced by making observations to find out whether the tippy tap was fully functional and provided with water and soap at all times for the pupils to easily practice hand washing. However, if one of the above materials was not provided, it would be categorized as partially functional, and non-functional if was broken down totally.

The condition or state of repair of WASH facilities under study was keenly observed, to identify any defects if any. The conditions were coded as good or satisfactory if the facilities were good, easily accessed and utilized by pupils, or categorized to be in bad if the floors were soiled or dirty, existence of cracks for the case of sanitation facilities or had broken taps for the case of RWHT.

In conclusion the key variables observed in all schools during the study included, availability and type of WASH facilities, condition or state of repair, and level of functionality of the WASH infrastructure.

## 5.4 Study unit

The study unit was a classroom in the respective schools selected.

## 5.5 Sample size determination

### 5.5.1 Quantitative data

The sample size formula for Kish Leslie (1965) was used as expressed below,

$$\text{Sample size, } n = \frac{Z^2 \times P(1-P)}{e^2}$$

Where;

Z is the standard normal deviate of 1.96 (95% confidence interval)

P is the assumed prevalence of WASH facilities in primary schools, p for this study was 39.7%, obtained from a similar study conducted in primary schools in Niger delta (Kotingo et al, 2014) 39.7% was used in order to give large sample size possible.

e is the margin of sampling error tolerated at 95% confidence interval given by 5%

n is the number of samples to participate in the study

$$n = \frac{1.96^2 \times 0.397(1 - 0.397)}{0.05^2}$$

$$n = 368$$

Sample size for the quantitative method of the study was 368 respondents.

### 5.5.2 Qualitative data

The researcher collected data from purposively selected study respondents until the sample size was reached. The researcher interviewed 12 key informants, including four Head teachers, two senior woman teachers, four teachers in charge of sanitation, and two officials from the District health office.

## **5.6 Selection of study participants**

### **5.6.1 Sampling procedure**

Butemba Sub-county has seven public primary schools, from which four were randomly sampled. Two of the schools had their WASH facilities entirely constructed with funding from Government and the other two had received additional WASH support from implementing partners in the Butemba sub-county. Simple random sampling was used to select the study participants from upper primary (primary five, primary six and primary seven classes) where 92 were selected from each school until the sample size of 368 pupils were obtained.

In each school, the head teacher, a teacher in charge of school sanitation and the senior woman teacher plus two district health officials were purposively sampled due to their knowledge of managing school resources on hygiene. A total of twelve administrators participated in the key informant interviews.

### **5.6.2 Inclusion criteria**

All pupils attending upper primary that is primary five, primary six and primary seven in the first term of the 2023 academic year were included in the study.

All head teachers, senior woman teachers and Teacher in charge sanitation of the four selected primary schools were included in the study.

### **5.6.3 Exclusion criteria**

Children who were absent during the time of the study, those who were in lower primary classes and those who declined to answer the questions were not included in this study.

## **5.7 Study variables**

### **5.7.1 Dependent variable**

Ownership, access and utilization of WASH facilities in primary schools.

### **5.7.2 Independent variables**

- Social-demographics including such factors like age of participant, sex, religion, classroom, frequencies, proportions and measures of central tendency.
- Physical factors like availability of clean water source, water and soap.
- WASH infrastructures, which looked at the designs of different technologies, their access, utilization and functionality. These were assessed using observation checklists.
- Sustainability measures in place like Operation and Maintenance plans, inputs, regulations, existing structures and interventions.
- Inadequate number of pit latrine stances in a school in relation to the school enrollment.
- Individual factors that included habits, motivation and level of awareness.

### **5.8 Data collection**

Quantitative data was collected using pre-tested, semi-structured questionnaires. The data collected included; socio-demographic characteristics, access and utilization of WASH facilities among the pupils. Observation checklists were used to collect data on the functionality and status of WASH infrastructure. Qualitative data was collected using key informant interview guides. These tools were all developed with reference from existing literature from published papers and articles of related studies on the topic. Key informants included school head teachers, teacher in charge sanitation, senior woman teacher, DHE and SEHO. This is because they were well conversant with WASH infrastructures and had knowledge regarding the objectives of the study.

### **5.9 Quality control**

#### **5.9.1 Training of research assistants**

Research assistants were trained to administer interviews using the designed questionnaire and correctly record data. Meetings with the research assistants were held at the end of each day after data collection to ensure that the data collected was uniform and that any issues arising from the data collection was addressed.

### **5.9.2 Pre-testing of the data collection tools**

There was pretesting of the questionnaires, observation checklists and key informant interview guides among other schools in Butemba Sub-county with similar respondents and edited accordingly to ensure that the questions were suitable and understandable. A meeting was held with the research supervisor to review the data collection tools, and changes were made on several key variables in the tools prior to the data collection exercise.

### **5.9.3 Supervision of research assistants**

The researcher supervised research assistants to ensure that all the required data was collected from all the respondents and minimized errors.

### **5.9.4 Field editing of data collection tools**

Data collection tools were translated to Luganda, the local language for easier understanding for some pupils who could not fully understand the details in the data collection tools then edited where appropriate to ensure all relevant information regarding the study objectives was captured.

### **5.9.5 Data Management and Analysis**

All the data was collected, edited, coded and then checked for completeness and consistency. The quantitative data was collected using hard-copy questionnaires and observation checklists. The questionnaires were entered and cleaned in Epidata software (version 14). The data was analyzed using STATA version 14. Frequencies, proportions, measures of central tendency and measures of variation were used to describe the study variables, the results were summarized into graphs, tables, and pie charts. Observational data was recorded on checklists and analyzed descriptively. Qualitative data was transcribed, and themes formed and analyzed manually.

### **5.9.5 Ethical Consideration**

Permission was sought from Makerere University School of Public Health (MakSPH), Kyankwanzi District Health Office, the Public Health Department of Butemba Sub County, and the school administrators of the selected schools. Informed consent was obtained from the parents of all the study participants who were minors and their age was below that to consent, the parents

signed on the consent forms as a sign that they had allowed their children to take part in the study, and assurances was guaranteed that all information provided by the respondents was kept confidential.

#### **5.9.6 Dissemination of results**

Results were submitted to Makerere University School of Public Health in a dissertation. Copies of the results were submitted to Kyankwanzi district health office, Butemba sub-county public health department and to the various stakeholders for action.

## CHAPTER SIX

### RESULTS

#### 6.0 Introduction

This chapter presents the quantitative and qualitative study findings of an assessment of the barriers and facilitators to ownership, access and utilization of WASH facilities among four Public primary schools in Butemba Sub County in Kyankwanzi District.

#### 6.1 Socio-demographic Characteristics

The majority of participants, 76.1% (280/368), were between 13-15 years old, and 51.4% (189/368) were female. The most significant number of participants, 37.2% (137/368) was from primary six.

**Table 1: Socio-Demographic characteristics of respondents**

Variable	Categories	Frequency(n=368)	Percentage (%)
Age(years)	10-12	62	16.8
	13-15	280	76.1
	16 and above	26	7.1
Gender	Male	179	48.6
	Female	189	51.4
Religion	Catholic	125	34.0
	Muslim	41	11.1
	Protestant	75	20.4
	Pentecostal	116	31.5
	Others	11	3.0
Class	Primary five	130	35.3
	Primary six	137	37.2
	Primary seven	101	27.5



## 6.2 Access and utilization of Water Supply facilities

The findings showed that the majority of respondents, 73.9 % ( 272/368) access water from boreholes compared to 14.1% (52/368) who depend on rain water harvest tanks. 49.5%(182/368), respondents reported to have experienced some delays in accessing water at water sources outside the school premises and overcrowding was among them, which accounted for 87.4%(159/368).

**Table 2: Shows water sources accessed by the pupils**

Variable	Frequency(n=368)	Percentage (%)
<b>Common water sources*</b>		
Rain water	52	14.1
Piped water	57	15.5
Borehole	272	73.9
Others	1	0.3
<b>Experienced delays</b>		
Yes	182	49.46
No	186	50.54
<b>Type of delays experienced* (n=182)</b>		
Water source very far	14	3.8
Overcrowding	159	87.4
Low yield	5	2.7
Not paid user fees	4	2.2

\*-Multiple response variable

This is supplemented by qualitative data where one key informant stressed that the pupils take long hours out of the school premises to look for water from a borehole, an alternative water source to RWHT during the dry season.

*“...at the moment we have a water problem at the school, every morning we send children to go to the borehole which is located very far from the school, it takes the children over an hour to collect water”* (Teacher in charge sanitation - Bisiika PS).

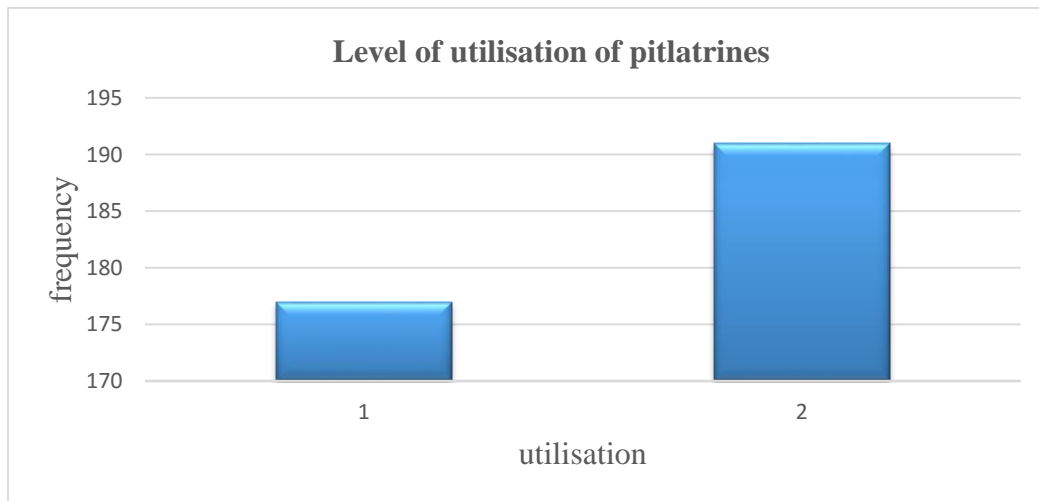
### 6.3 Utilization of sanitation facilities

This section explores the study findings about using sanitary facilities within the schools. The subsections under it specifically present results about the utilization of pit latrines, urinals, and anal cleansing materials.

#### 6.3.1 Utilization of pit latrines

Results showed 100 % (368/368) availability of pit latrines however the frequency of utilization was below half at 48.1 % (177/368).

**Figure 2: The bar graph shows level of utilisation of pit latrines among pupils**

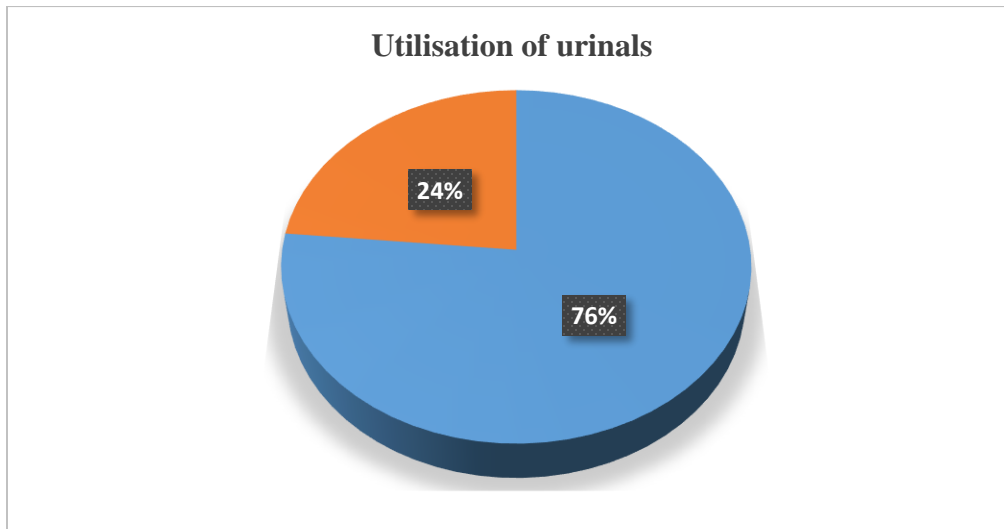


Additional results from the observation checklist indicated that there was a poor pupil- stance ratio, the ranges were (84:1, 70:1, 64:1, and 51:1), spread among the visited schools in that order.

### 6.3.2 Utilization of Urinals by Pupils at School

The pie chart shows that most of the pupils (boys), 76 % (137/179) utilized urinals at least 2-5 times a day while at school.

**Figure 3: A pie chart shows the level of utilization of urinals among the male pupils**



### 6.4 Access and Utilization of anal cleansing materials

Results showed that the greatest number of learners, 90.9% (252/277) accessed the anal cleansing materials from the classroom always placed close to the window.

**Table 3: Shows access and utilization of anal cleansing materials**

Anal cleansing materials	Frequency(n=368)	Percentage (%)
<b>Access</b>		
Yes	277	75.3
No	91	24.73
<b>Use anal cleansing</b>		
	n=277	
Yes	252	90.9
No	25	9.1

Findings from a key informant were however contrary to those of the respondents.

*“...access to anal cleansing materials is still very low, only 5% of the pupils have access to the anal cleansing materials, and usually the teachers put those materials mostly in the classrooms at the window to prevent miss-use. (District official-Kyankwanzi)*

## 6.5 Utilization of Hand hygiene facilities

This section explains the findings obtained from the study concerning the level of utilization of hand washing facilities among learners.

Results showed that 97.1% (357/368) of respondents utilized hand washing facilities and most of the respondents, 75.1% (268/357) practiced hand washing at least more than twice a day while at school, while a majority of them 81.8% (292/357) used water only to wash hands during the critical moments.

**Table 4: Hand washing practices among study respondents**

Variable	Frequency (n=368)	Percentage (%)
<b>Hand washing facility</b>		
Yes	357	97.1
No	11	2.9
<b>Use HWF(2-5times)</b>	<b>n=357</b>	
Yes	268	75.1
No	89	24.9
<b>Materials used</b>	<b>n=357</b>	
water only	292	81.8
water and soap	65	18.2
<b>Moments of hand washing</b>	<b>n=357</b>	
After visiting the pit latrine	286	80.1
Before a meal	71	19.9

*“...I always make observations of the pupils and most of them frequently wash hands after they have visited the pit latrine and before eating their porridge during lunch break”.(Teacher Bisiika PS)*

## 6.6 Findings from observational checklists

From the observations made among the four primary schools, the overall enrollment of boys was more than girls and Kabagaya primary school had the highest enrollment, of 752 learners and Lwamagaali had the least, 504 learners all together. Table (5) below shows a summary of overall enrollment per school per sex among the four schools from where the study was conducted.

**Table 5: Shows Enrollment of pupils by sex per school**

School	No. of pupils per Sex		
	Boys	Girls	Total
Bisiika Primary School	352	280	632
St. Mary's Lwamagaali Primary School	242	262	504
St. Joseph Kayunga Primary School	353	342	695
Kabagaya Primary School	385	367	752
<b>Total</b>	<b>1332</b>	<b>1251</b>	<b>2583</b>

## 6.7. Level of Functionality of WASH Facilities

From the observations, all the schools had at least one or more water source supplies, the most common water sources being RWHT and 75% being fully functional. VIP was the most common type of sanitation facility across all schools and only 25% of the schools had fully functional latrine facilities. This was similar to a report given by one of the District health official, who said that,

*"...schools are not doing well as regards WASH facilities, hand washing facilities are either absent or nonfunctional in most of the schools, about 90% of the public schools lack the facilities, pupil's stance ratio is still poor on average 70:1 "*. (District health official - Kyankwanzi)

The urinals observed were made of flat levelled concrete floor and only 25% were fully functional. All the four schools had at least one or more hand washing facilities, with an average number of two. Similar results were also reported from some of the key informant interviews. One of the key informants indicated that *"our school is blessed to have 3 functional RWHT which were constructed by an NGO called CECE, and they also provided P&G water purifiers which we use*

*to treat water before giving it to our pupils to drink, this has reduced on the number of pupils who suffer from diarrhea in our school". (Teacher- Lwamagaali PS)*

Moreover, Tippy tap was the common type of HWF where 75% were located beyond 5 meters from the pit latrine, and only 25 % of the schools had fully functional HWFs. No single school had MHM facilities.

**Table 6: Findings from the observations made concerning the functionality of WASH facilities**

School	WASH infrastructure		Condition /Functionality status of WASH-facilities						
	Water source	Availability	No.	Type	Stances	Condition	Accessed by all	Functionality	
Bisiika PS	RWHT	Yes	2	Ferro cement	NA	Good	Yes	Partially functional	
				Plastic		Bad		Non-functional	
	<b>Sanitation</b>								
	Pit latrines	Yes	2	VIP	10	Satisfactory	Yes	Fully functional	
				Concrete gutters		Bad(soiled			
	Urinals	Yes	1	at floor level		floors)	No	Partially functional	
	<b>Hygiene</b>								
	Hand Washing	Yes	5	Mobile buckets		Good	No	Fully Functional	
Anal cleansing	No	NA	NA	NA	NA	NA	NA		
	MHM	No	NA	NA	NA	NA	NA	NA	
St Mary's Lwamagaali PS	<b>Water source</b>								
	RWHT	Yes	4	Plastic	NA	Good	Yes	4 Fully functional	
	<b>Sanitation</b>								
	Pit latrines	Yes	2	VIP	10	Satisfactory	Yes	Fully functional	
			Concrete gutters						
Urinals	Yes	1	at floor level		Satisfactory	Yes	Partially functional		
<b>Hygiene</b>									

	Hand Washing	Yes	2	Tippy tap		Good	No	Partially functional
	Anal cleansing	Yes		Toilet paper		Good	Yes	NA
	MHM	No	NA	NA	NA	NA	NA	NA
	<b>Water source</b>							
	RWHT	Yes	1	Plastic	NA	Bad	No	Not functional
	Piped water	Yes	1	PSP		Good	Yes	Fully functional
	<b>Sanitation</b>							
	Pit latrines	Yes	2	VIP		Good	Yes	Fully functional
				Concrete gutters				
	Urinals	Yes	1	at floor level		Bad	No	Not functional
	<b>Hygiene</b>							
	Hand Washing	Yes	2	Tippy tap		Good	Yes	Partially functional
	Anal cleansing	No	NA	NA	NA	NA	NA	NA
Kayunga PS	MHM	No	NA	NA	NA	NA	NA	NA
	<b>Water source</b>							
	RWHT	Yes	2	Plastic	NA	Good	Yes	Fully functional
	<b>Sanitation</b>							
	Pit latrines	Yes	3	VIP		Good		Fully functional
				Concrete gutters			Yes	
	Urinals	Yes	1	at floor level		Bad	No	Partially functional
	<b>Hygiene</b>							
Kabagaya PS	Anal cleansing	Yes		Toilet paper		Good	Yes	NA



	Hand Washing	Yes	1	Mobile buckets		Good	No	Partially functional
	MHM	No	NA	NA	NA	NA	NA	NA

## 6.8 Barriers and Facilitators

This section highlights the major barriers and facilitators to access and utilization of WASH facilities among schools visited as narrated by the key informants. All were able to report that the schools lacked menstrual hygiene management facilities for the girls to use to clean themselves, wash their articles during and after menstruation period. Rampant vandalism of school WASH facilities by surrounding community members, generally schools had no funds for the school to invest in the installation of WASH facilities like regular procurement of soap for hand washing, many KIs mentioned that pit latrine stances were inadequate as compared to the school enrollment, other barriers not frequently mentioned but could be of public health significance included inadequate and unreliable water supply systems, poor attitude to use the WASH facilities, negatively affects utilisation.

*“...if we identify the girl who is undergoing menstruation, we just send them back home to her parents because as a school we do not have any sanitary pads for them to use and worse still there is no room for them to have their privacy”.* (Senior woman teacher- Kabagaya PS)

*“...I keep buying taps every term to replace those which are broken by the school children as well as the community, who miss handle and vandalize water tanks, if the tank is locked the community members around the school forcefully fetch the water, some even come saying, we shall break it, meaning the water tank under lock, if they find taps under lock they just break the locks and forcefully fetch water from the tanks dry”.* (Teacher -Kabagaya PS)

*“...currently the pupil stance ratio among the public primary schools is still poor, on average it stood at 70:1 as compared to the ideal standard of 40:1 as recommended by the ministry of Education, unless the ministry supports these schools with the construction of more sanitation infrastructures, they will remain miserable as regards ensuring proper access and utilization of these facilities by the learners”.* (District official-Kyankwanzi)

The key informants also highlighted some good things that have necessitated them to ensure that pupils get access to WASH facilities. Some administrators said that they had received support from stakeholders like parents, Butemba Sub County and NGOs towards the construction of rainwater storage tanks which in the long run increased access to water by the pupils.

*“...we received support from Butemba sub-county, CECE and a well-wisher from the Indian community, they managed to construct for the school 10000liter water tanks, as a school we have tremendously increased access to water among the pupils since we are able to harvest water during rainy season”.* (Teacher-Kabagaya PS)

*“...we have received supplies of P&G water purifiers from CECE that we use to treat water before giving it to pupils and teachers to drink or use for other purposes”.* (Teacher -Lwamagaali PS)

**Table 7: Shows findings from key informants under different themes**

Theme	Sub-theme	Findings		
		Outcome	Key informant (n=12)	Percent (%)
Barriers to access and utilisation of WASH facilities	Lack of WASH infrastructure	No Menstrual Hygiene Management facilities for the girls	12	100
		Inadequate pit latrine stances as compared to the school enrollment	11	91.7
		Inadequate and unreliable water supply	07	58.3
		Inadequate hand washing facilities for pupils to wash their hands	03	25
	No budgets for WASH in schools	Inadequate funds for the school to procure soap for hand washing at the HWF	11	91.7
		Poor funding for implementation of WASH activities	08	66.7
		Inadequate funds to provide anal cleansing materials for the pupils.	07	58.3
	Knowledge gaps on utilization of WASH-facilities	Improper use of pit latrines among pupils due to their cultural differences	04	33.3
		Poor attitude towards hygiene and sanitation practices among the learners	04	33.3
		Lack of awareness about the dangers of not observing the standards	02	16.7
	Unfavourable policies	Weak implementation and enforcement of sanitation standards by education department	02	16.7
		Teachers do not help children to use the hand-washing facilities	02	16.7
	Poor Operation and Maintenance	Vandalism of WASH infrastructure by uncooperative community members	10	83.3

		The poor state of WASH facilities in schools, many are defective, and dilapidated	08	66.7
		Lack of documentation about the ownership of the school land	01	8.3
Facilitators to access, utilisation of WASH facilities	Health education and promotion activities	Conduct school health parades to assess hygienic practices	06	50
		Involvement and participation of learners in conducting general cleaning	03	25
		Health education talks reinforced with IEC materials pinned in offices and classrooms	02	16.7
	External support	Support from the Government and NGOs towards construction of WASH infrastructures	08	66.7
	Planning for WASH-services	Planning together with stakeholders involved in the provision of Education and WASH activities	01	8.3
	Sustainability of WASH-facilities in schools	Protection of water tanks by construction of fence around them	03	25
		Parents contribute towards the payment of water bills at school	03	25
		School administration provides detergents used in cleaning the pit latrines	02	16.7
	Favourable leadership	Streamlined WASH leadership structures at the school	06	50

## **CHAPTER SEVEN**

### **DISCUSSION**

#### **7.0 Introduction**

This chapter discusses the results from the study. It is sub-divided into access and utilization, level of functionality, Barriers and Facilitators to access and utilization of WASH facilities among respondents. The chapter compares the study findings with findings from other related studies and gives their public health significance.

#### **7.1 Access and Utilization of water facilities**

The water source supply among the schools was mainly RWHT and piped water supply, these tanks were constructed with gutters installed to harvest water from the roof during the rainy season and be utilized by the pupils throughout the term, and the piped water was extended to one school where a single tap was installed to serve pupils with drinking water and water for other purposes. These results align with a study (Bolatova et al 2021) where 2 schools studied had piped water systems and 1 borehole. The only difference was that the borehole was permanently installed within the school premises for students to access water easily. These water sources provide the water necessary for the learners to practice hand hygiene, drink, and use it to clean the school's WASH facilities and prepare meals for the pupils and the teachers.

#### **7.2 Access and Utilization of sanitation facilities**

All the schools had 100% access to an improved pit latrine, however, the facilities did not meet the required pupil stance ratios as per the recommended standards by the Ministry of Education and Sports guidelines. None of the four schools met the required standard. The ranges were (84:1, 70:1, 64:1, and 51:1). The policy recommends that Forty (40) pupils should utilize one (1) latrine stance (MoES 2016). The results of this study showed non-compliance with the recommended standards. The inappropriate pupil stance ratio adversely affects pupils' proper utilization of pit latrines. These findings are similar with Kimbugwe et al (2018). Their study found out that an estimated 92% of schools had usable pit latrines, but the pupil-to-stance ratio did not meet national

standards, and according to the study, only 25% of the schools could meet the 40:1 pupil stance ratio.

These findings also align with Antwi-Agyei et al (2017) whose results showed that 97% of all the surveyed schools had improved latrines, but were not fully utilized. This as reported from the survey was because 95% of the latrines were reported to be smelly inside and outside the stances and the pits were also observed to be full at that time of study.

Findings from this study showed that only 48.1% of pupils utilized the pit latrines at least 2-5 times a day. Low utilization of pit latrines could be due to ignorance and negligence on proper use of the latrines, and anal cleansing materials by the pupils (Chilipweli and Makene 2021). These factors may result into exposing faecal matter which can attract flies and accelerate faecal route of disease transmission. Therefore, sensitization on properly using anal cleansing materials to the pupils is paramount. Additionally, the Ministry of Education and Sports should increase the budget to enhance the construction of sanitation infrastructure among schools to meet the minimum standards as per the policy.

### **7.3 Access and Utilization of hand washing facilities**

Utilization of hand washing facilities was reported to be high among learners up to 75.1%, this could be because most of them were aware of the benefits of hand washing as regards prevention of infections such as typhoid and diarrheal diseases which they mentioned to be among the most prevalent diseases when assessed during the interview, also the fact that there was an increase in installation of Tippy taps and other hand washing technologies among schools as a requirement to fulfil IPC guidelines against Covid 19, every institution was required to provide hand washing facilities and train pupils on how to use them properly. Ever since the outbreak of the pandemic learners adopted the practice of frequent hand washing as a standard operating procedure to kill germs. These findings were contrary to those reported by (Bolatova et al 2021) where only half of the pupils washed their hands after visiting the pit latrine. The author indicated that the low utilization of the hand washing facilities was that the schools did not have hot water and the absence of hot water at school might have affected healthy behaviour like hand washing, especially in winter time during which the study was conducted.

Most of the hand washing facilities provided in schools lacked soap. This was because the schools did not have sufficient funds to sustain the procurement of the soap throughout the term and these findings were similar to those by Antwi-Agyei et al (2017) where only 39% of schools could manage to provide soap for hand washing due to budget implications. Schools should take it as a priority to provide all the required facilities like soap to ensure that pupils wash their hands at all times since it is proven that thorough, frequent and consistent hand washing with clean water and soap is one of the most effective ways of separating excreta from being ingested by humans.

#### **7.4 Level of Functionality of water supply facilities**

All four schools had at least one or more water sources within the school premises to ensure that there is water supply to the schools and the most common water source was rain water, collected and stored in tanks. Observation showed that up to 75% of the schools had fully functional water sources. The key informant attributed the functionality to the good operation and maintenance of the water sources and timely payment of water bills to the national water and sewerage supply system by the school heads. These findings are similar to findings in a study by Tiswin et al (2019) where nearly two-thirds of the schools, (64%) had functional water sources. All the functional water sources were safe from contamination and school authorities should endeavor to supervise the pupils during water collection to maintain a safe water chain.

#### **7.5 Level of Functionality of Sanitation Facilities**

Only 25 % of schools had a fully functional pit latrine. This could be because most latrines did not have doors to offer the required privacy to the pupils because of the increasing vandalism where community members had stolen doors and other accessories from the pit latrines or also due to lack of routine maintenance of the infrastructures by the school administration. These findings align with those conducted in a similar study by Ojukwu et al (2020) who reported that up to 75% of the schools had inadequate and non-functional latrines at the time of their survey. This situation was because the latrines were covered by over grown grass that hindered them from serving their purpose, therefore, a latrine facility that is functional should have the ability to serve its purpose with no health risks to its user and should offer an acceptable level of comfort during usage.

The level of functionality of urinals was 25% among the schools surveyed. The facilities were dilapidated, cracked and had broken walls with no privacy, discouraging pupils from using them.



To some extent floors were littered with human excreta which scared the pupils. These findings are similar to those reported by Tiswin et al (2019). From their study they revealed that the majority of the schools had urinals constructed with a flat levelled concrete floor, this type of urinals were considered to be unimproved, were not user friendly and considered to be unsafe for the pupils because their design and construction did not have platforms for the users to place their feet while urinating which put them at risk of contamination, and hence this type of urinal was considered to be unimproved. In addition, none of the schools had urinals with a roof, this forced the pupils to abandon using the facilities due to the discomfort they would experience.

Another survey by Antwi-Agyei et al (2017) showed a 44% functionality status of urinals, were unimproved, dangerous to users and were an avenue for parasitic infestation among the pupils who would go to use them without footwear. In estimating latrine accommodation for the boys, half the total number of stances should be calculated to cater for the urinals as provided by the public health rules and regulations for school buildings, their design and construction should be in such a way that there is provision made for the urine to drain away into a soak pit, and special platforms provided for pupils to stand on while urinating to protect the user's feet and body from getting into contact with the black water.

### **7.6 Level of the functionality of HWFs**

All the four schools had at least one or more hand washing facilities. On average each school had two facilities located beyond 5 meters from the pit latrine. The tippy tap was the common type of facility used in all the schools. Twenty Five (25%) of schools had fully functional HWFs, majority of them (75%) had provided just water and only 25% of schools had provided soap, an indicator that pupils did not wash hands with soap which put them at risk of infections with faecal-oral diseases such as typhoid, diarrhoea and the deadly Covid 19 virus. The non-functionality could have been because the HWF were not regularly refilled after water got used up and schools could not afford to buy soap daily due to inadequate funds. These findings were in line with Alexander et al (2018) where only 26% of schools on average had hand washing facilities. Findings from another study by Ahmed et al (2021) also reported that only 13.6% of schools had functional (with water and soap) hand washing facilities. Schools should increase the number of HWFs and ensure that enough funds are availed to provide MHM facilities for pupils especially girls to promote good personal hygiene. Girls use these facilities to clean and change themselves during

menstruation period. There was no access to emergency sanitary pads from the school administration whenever the girls started menstruating. Facilities like sanitary pads, buckets, soap, designated rooms to offer privacy to the girls to clean themselves were lacking and under such circumstances the pupils would absent themselves from school until when the days of menstruation are completed. These findings are in line with a study conducted by Korir, Okwara, and Okumbe (2018), they identified inadequate clean water supply at school for girls to wash their stained clothes, inadequate latrines and stigma from peers of the opposite sex as some of the barriers to access and utilization of MHM facilities. In another study reported by Mukasa and Jalameso (2019), about 43.6% adolescent girls had missed school due to menstruation and it was revealed that 50.3% of those that ever missed school was mainly due to lack of menstrual hygiene facilities at their school.

## **7.7 Barriers and Facilitators to access and utilization of WASH facilities**

### **7.7.1 Barriers**

Poor operation and maintenance of the WASH facilities, was among the main barriers reported by the key informants, (83%, 10/12) pointed out the act of vandalism of WASH infrastructure by what they described as hostile and uncooperative community members who leave close to the school premises. Some community members trespass within the school boundaries, this was brought about by the fact that most of the schools were not fenced to prohibit trespassers. WASH infrastructure like taps at rainwater harvest tanks were always broken, materials used to promote hand washing like soap, jerrycans used to make tippy taps stolen, latrine doors of mainly metallic type were also stolen, sold as scrap together with hand rails which were meant to support the learners with physical disabilities. This adversely affected access and utilization of these facilities among the pupils. These findings were in line with a study by (Kimbugwe et al 2018), they documented vandalism of school WASH infrastructure carried out across selected public schools in Kampala.

Additionally, lack of WASH infrastructures within the schools, was noted as the most significant challenge across most of the schools. Inadequate sanitation facilities for use by pupils in all schools was frequently mentioned by most of the key informants and ranked highest at (91.7%, 11/12) as a barrier to utilisation of WASH facilities in most of the schools visited. Generally schools had few latrine stances as compared to the number of pupils, those available were not enough for the pupils which forced some of them to look elsewhere to defecate and in the end practiced open defecation behind the latrine facilities or even on the floors of the urinals. The pupils found hardships to compete or wait in long lines to use the few latrine stances available at their school. Teachers across all schools lacked their own pit latrines and had to share with the pupils. Findings in this study were similar to those reported by Sarkingobir et al (2019), they found out that, school staff were sharing the same latrine facilities with students and recommended that there should be at least two latrine stances to serve both the female and male teachers. There was a bad culture among some learners who avoided using the pit and decided to defecate around the squat hole because their culture prohibits them (reported by a KI) from using the pit latrine for defecation.

This practice was observed to be a threat to public health because it accelerated, unsightliness, smells and fly nuisances.

Schools were affected by inadequate water supplies, even where the facilities existed, their supplies were unreliable and insufficient to meet the pupils' water demands. Schools needed enough water for hand washing, preparing meals, drinking and environmental hygiene. The water shortage was due to dry spells whereby the water in the storage tanks was always completely used up, the storage containers (buckets) for drinking water were old and some had been either misused or stolen.

Inadequate water supply at school could cause outbreaks of water-related diseases like typhoid, disrupting pupils' learning schedules since they could spend much time fetching water from unsafe water sources outside the school premises. These findings align with a study by Amsalu et al (2022), they revealed that only 10.8% of the schools had access to water supply. Their primary drinking water source was from surface water sources, however, the schools did not have readily available drinking water.

On record, most schools did not have budgets to fund the provision of the necessary WASH facilities. There was evidence among the KI interviewed which indicated that the hygiene promotion facilities like anal cleansing materials were not regularly provided because they were costly and the schools did not have funds to buy them for the pupils to use throughout the term. 58.3% of administrators reported lack of anal cleansing materials and that some pupils would improvise with materials such as leaves, stones, sticks and some were using the internal walls of the pit latrine to clean themselves. Ultimately these methods were inappropriate and resulted in hand contamination with faecal matter, hence escalating disease transmission. In addition, such materials when disposed in the latrine pits caused them to fill up easily, some were dropped on the floors making them filthy while others could be accessed by flies which were vectors of disease. These findings align with those from a study conducted by Umuro, Karama, and Nyagetiria (2022), where they revealed that accessibility to anal cleansing materials in the schools was generally low with only 22.9% of the pupils having access to toilet paper or water.

### **7.7.2 Facilitators**

Some schools reported to have received external support towards the construction of WASH infrastructure, this was highlighted to be among the successes registered among the schools towards access to WASH facilities. The majority of key informants (66.7% 8/12) reported that among the successes towards access and utilisation of WASH facilities in schools was full support received from Government and some implementing partners, such as NGOs that implement WASH projects within Kyankwanzi District. These partners contributed towards the construction of WASH infrastructure, such as RWHT, donation of portable hand washing facilities to improve access to clean water and improve hand hygiene among the pupils, respectively.

Another facilitator noted during the interviews was the existence of favourable leadership that the school administrators highly exhibited. As reported by key informants (50% 6/12), schools through their administrators formulated WASH structures and departments with a well streamlined leadership, each with clearly spelt out roles that help in overseeing the implementation of WASH activities, for example each school has a teacher in charge sanitation, senior woman teacher, sanitation prefects, who work hand in hand with teachers on duty under the guidance and supervision of the Head teacher. These leaders ensured that WASH facilities are functional, regularly cleaned and encouraged pupils to embrace hand washing activities during the most critical moments while at school.

Additionally a few of the school administrators reported to have developed a practice of documenting and sharing the WASH challenges faced at school with several of their stakeholders for example the parents, political leaders and NGOs. This would help bring cohesion and good relationships between the school administration and the stakeholders and in the end strengthened the ownership, advocacy and offered incentives as a means to support schools towards provision of WASH infrastructure, this was reported by (16.7% 2/12) key informants.

Last but not least, health education and promotion activities were also highlighted as a strength towards implementation of WASH in schools. As highlighted by some key informants, most schools had formulated schedules through which key health and hygiene promotion messages could be disseminated through conducting health education talks with the aid of IEC materials

pinned in offices and conspicuous areas within the school compound where learners could easily access WASH promotion key messages. Another mode of passing messages would be conducted during health parades/school assemblies by the teacher in charge sanitation, to promote a positive behaviour change among the pupils to ensure that pupils properly utilize the WASH-facilities at school.

### **7.8 Study limitations**

Pupils who were among the study participants were below age of consent and it necessitated the researcher to first seek consent from the parents on their behalf before commencing with the interview, this took a lot of time since a total of 368 parents, an equivalent to the sample size had to be reached out to fill the consent forms.

## CHAPTER EIGHT

### CONCLUSION AND RECOMMENDATIONS

#### 8.1 Conclusion

- ❖ The level of utilization of sanitation facilities was low at (48.1%), due to inadequate pupil stance ratio recorded among school facilities which was on average (70:1). The utilization level of hand washing facilities was high (97.1%), however only (18.2%) of the pupils washed hands using soap.
- ❖ Functionality of WASH facilities was generally low, water supply in schools was (75%), sanitation (25%) and hygiene facilities (25%) across the schools visited.
- ❖ Vandalism of WASH infrastructure by nearby communities ranked high as the common barrier to access and utilization of WASH facilities among the schools. Lack of access to Menstrual Hygiene Management facilities for the girls was highly ranked as a major barrier towards promotion of hygiene among the adolescent girls across all the schools.

#### 8.2 Recommendations

##### 8.2.1 School administrators

- ❖ Skill the girls in making reusable sanitary pads which are cost-effective and affordable.
- ❖ Erect fences around the school premises to lock out communities that vandalize school WASH facilities.
- ❖ Set aside funds to ensure regular Operation and Maintenance of school WASH facilities before they completely break down.
- ❖ Liaise with the Parents to give a supportive hand in providing some hygiene facilities for example toilet paper and sanitary pads.

### **8.2.2 Public health department at Butemba sub county**

- ❖ Conduct routine school health inspection and health education on personal and environmental hygiene among the pupils.

### **8.2.3 Kyankwanzi district local government**

- ❖ Should lobby and mobilise more resources through engaging NGOs and development partners to support schools in construction of more WASH facilities.
- ❖ Plan and budget for constructing and renovating WASH infrastructure within public primary schools.
- ❖ Emphasize a multi-sectoral collaboration and ensure that WASH issues are mainstreamed across all sectors within the district.
- ❖ Advocate for increased funding of WASH activities in schools.



## REFERENCES

1. Antwi-Agyei, P., Mwakitalima, A., Seleman, A., Tenu, F., Kuiwite, T., Kiberiti, S. and Roma, E., 2017. Water, sanitation and hygiene (WASH) in schools: results from a process evaluation of the National Sanitation Campaign in Tanzania. *Journal of Water, Sanitation and Hygiene for Development*, 7(1), pp.140-150.
2. Assefa, M. and Kumie, A., 2014. Assessment of factors influencing hygiene behaviour among school children in Mereb-Leke District, Northern Ethiopia: a cross-sectional study. *BMC public health*, 14, pp.1-8.
3. Agaro, A., Hareru, H.E., Muche, T., Sisay W/tsadik, D., Ashuro, Z., Negassa, B., Legesse, M.T., Kaso, A.W., Alemu, W., Alemayehu Gube, A. and Aregu, M.B., 2022. Predictors of Hand-Washing Practices at Critical Times Among Mothers of Under-5 Years Old Children in Rural Setting of Gedeo Zone, Southern Ethiopia. *Environmental Health Insights*, 16, p.11786302221120784.
4. Alemu, G., Abossie, A. and Yohannes, Z., 2019. Current status of intestinal parasitic infections and associated factors among primary school children in Birbir town, Southern Ethiopia. *BMC infectious diseases*, 19(1), pp.1-8.
5. Ahmed, J., Wong, L.P., Chua, Y.P., Hydrie, M.Z.I. and Channa, N., 2022. Drinking water, sanitation, and hygiene (WASH) situation in primary schools of Pakistan: the impact of WASH-related interventions and policy on children school performance. *Environmental Science and Pollution Research*, 29, pp.1259-1277.
6. Amsalu, A., Atikilt, G., Taklual, W. and Tilahun, A., 2022. Progress of water, sanitation, and hygiene facilities in public primary schools of south Gondar zone, Northern Ethiopia. *PAMJ-One Health*, 7(19).
7. Chilipweli, P.M. and Makene, M.T., 2021. Proper Use of Latrine and Hand washing Facilities among Primary School Students. A Case of Peripheral Schools in Temeke District. *International Journal of Pharmaceutical and Bio Medical Science*, 1(5), pp.54-64.
8. Kimbugwe, C., Mooring, R., Watako, D. and Tumisiime, F., 2018. Blockages to Service sustainability of Water, Sanitation and Hygiene in Schools Case study of selected public schools in Kampala Uganda. *OIDA International Journal of Sustainable Development*, 11(10), pp.61-72.

9. Tiswin, T.N., 2016. *Assessing the availability and utilisation of water, Sanitation and hygiene (wash) facilities in public primary schools in the ZABZUGU district of Ghana* (Doctoral dissertation).
10. McMichael, C., 2019. Water, sanitation and hygiene (WASH) in schools in low-income countries: a review of evidence of impact. *International journal of environmental research and public health*, 16(3), p.359.
11. Mbakaya, B.C., Kalembo, F.W. and Zgambo, M., 2020. Use, adoption, and effectiveness of tippy-tap hand washing station in promoting hand hygiene practices in resource-limited settings: a systematic review. *BMC Public Health*, 20(1), pp.1-25.
12. Mukasa, M.M. and Jalameso, A.O., 2017. Menstrual hygiene management compliance in primary schools in Uganda: a case of Lira Municipality.
13. Garfias Royo, M., Parrott, E., Pacheco, E.M., Ahmed, I., Meilianda, E., Kumala, I., Oktari, R.S., Joffe, H. and Parikh, P., 2022. A structured review of emotional barriers to WASH provision for schoolgirls post-disaster. *Sustainability*, 14(4), p.2471.
14. Alseny B, et al Water, Sanitation, and Hygiene (WASH) and the Incidence and Prevalence of Children in Five Public Primary Schools in N'Zerekore, Guinea
15. Umuro, S.A., Karama, M. and Nyagetiria, A.D., 2022. Accessibility of anal cleansing materials for public primary school pupils in Kajiado County, Kenya. *African Journal of Health Sciences*, 35(6), pp.686-696.
16. Ojukwu, C.K. and Chukwu-Okeah, G.O., Assessment of Water Supply and Toilet Facilities in Selected Primary Schools of Kolo Creek Area, South-South Nigeria.
17. Sarkingobir, Y., Nahantsi, M.S., Shehu, Z., Siddiqi, A.A., Malami, N., Saadu, A. and Hamza, A., 2019. Assessment of Selected Health Determinants among Almajiri Students in Gwadabawa Local Government, Sokoto State, Nigeria. *Journal of Applied Sciences and Environmental Management*, 23(7), pp.1365-1370.
18. UNICEF/WHO (2021). "progress on drinking water, sanitation and hygiene in schools." Joint monitoring programme.
19. Morgan, C., Bowling, M., Bartram, J. and Kayser, G.L., 2017. Water, sanitation, and hygiene in schools: Status and implications of low coverage in Ethiopia, Kenya, Mozambique, Rwanda, Uganda, and Zambia. *International journal of hygiene and environmental health*, 220(6), pp.950-959.

20. Bah, A., Diallo, A., Bah, A. and Li, F., 2020. Water, Sanitation, and Hygiene (WASH) and the Incidence and Prevalence of Children in Five Public Primary Schools in N'Zerekore, Guinea.
21. Enfield, S., 2018. Mainstreaming disability and making WASH programmes inclusive.
22. Boosey, R., Prestwich, G. and Deave, T., 2014. Menstrual hygiene management amongst schoolgirls in the Rukungiri district of Uganda and the impact on their education: a cross-sectional study. *Pan African Medical Journal*, 19(1).
23. Dajaan, D.S., Addo, H.O., Ojo, L., Amegah, K.E., Fiagbe, L., Bechala, B.D. and Benjamin, B.B., 2018. Hand washing knowledge and practices among public primary schools in the Kintampo Municipality of Ghana.
24. Enfield, S. (2018). "Mainstreaming disability and making WASH programmes inclusive." Institute of Development Studies
25. UNICEF(2012) wash for school children, State-of-the-art in Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lank
26. Omona s,et al (2020) Prevalence of diarrhoea and associated risk factors among children under five years old in Pader District, northern Uganda
27. WHO/UNICEF joint monitoring programme for water supply ,sanitation and hygiene(2000-2001) MoES(august 2017),Guidelines for three star approach for planning and implementation of WASH in schools
28. Drinking water, sanitation and hygiene in schools: global baseline report 2018. New York: United Nations Children's Fund (UNICEF) and World Health Organization, 2018
29. Bolatova, Z., Tussupova, K., Toleubekov, B., Sukhanberdiyev, K., Sharapatova, K. and Stafström, M., 2021. Challenges of access to WASH in schools in low-and middle-income countries: Case study from rural central Kazakhstan. *International Journal of Environmental Research and Public Health*, 18(18), p.9652.
30. Niraj, J.A.I.N., CHILESHE, R., MUWOWO, F. and MULENGA, S., 2019. Assessing Sustainability of Wash Projects Using USAT: A Case of Public Schools in Zambezi District of Zambia. *International Journal of Social Science Research*, 8(1), pp.29-45
31. Alexander, K.T., Zulaika, G., Nyothach, E., Oduor, C., Mason, L., Obor, D., Eleveld, A., Laserson, K.F. and Phillips-Howard, P.A., 2018. Do water, sanitation and hygiene conditions in primary schools consistently support schoolgirls' menstrual needs? A longitudinal study in

- rural western Kenya. *International journal of environmental research and public health*, 15(8), p.1682.
32. Erhard, L., Degabriele, J., Naughton, D. and Freeman, M.C., 2013. Policy and provision of WASH in schools for children with disabilities: a case study in Malawi and Uganda. *Global Public Health*, 8(9), pp.1000-1013.
  33. The Public Health (School Buildings) Rules, Cap 269
  34. Kotingo, E.L., Ayerite, A.L. and Chukwuma, C.B., 2014. Evaluation of the toilet facilities in primary schools in the Niger Delta: WASH education series 2. *Int J Innov Res Develop*, 3, pp.1-10.
  35. Namata, T. and Mujuni, F., 2015. Achieving sustainable operation and maintenance of water and sanitation facilities: findings from selected primary schools in Northern Uganda
  36. UNICEF Uganda/2022/ Mugisha
  37. Sustainable Development Goals booklet
  38. Khan, S., Ashraf, H., Iftikhar, S. and Baig-Ansari, N., 2021. Impact of hand hygiene intervention on hand washing ability of school-aged children. *Journal of Family Medicine and Primary Care*, 10(2), p.642.
  39. Child Friendly Schools Manual
  40. Weaver, E.R., Agius, P.A., Veale, H., Dorning, K., Hlang, T.T., Aung, P.P., Fowkes, F.J. and Hellard, M.E., 2016. Water, sanitation, and hygiene facilities and hygiene practices associated with diarrhea and vomiting in monastic schools, Myanmar. *The American journal of tropical medicine and hygiene*, 95(2), p.278.
  41. Zaunda, H., H. Holm, R., Itimu-Phiri, A., Malota, M. and White, S., 2018. A qualitative assessment of disability friendly water and sanitation facilities in primary schools, Rumphi, Malawi. *Development Southern Africa*, 35(6), pp.760-773.

## APPENDICES

### Appendix I: Consent Form

Hello, my name is.....a student of Makerere University School of Public health [MakSPH]. I am conducting a study on barriers and facilitators to ownership, access, and utilisation of WASH facilities among primary schools in Butemba Sub-county, Kyankwanzi district. I would like to conduct an interview with your child about the above mentioned subject. It is a low risk study and will have no harm to your child. The questionnaire is anonymous because we do not need your child's name so their views will remain confidential.

I therefore invite you to participate in this study. However you reserve the right to accept or decline to take part in the study. The information provided will not be accessed by any other person and will only be used for purposes of this study. Codes instead of names will be used to ensure that the data collected cannot be identified with you.

#### **Voluntary consent**

You are free to participate in this study or not. Participation is completely voluntary and one will not be penalized for refusing to take part in the study. Any one is free to ask questions before, during and after the interview. You may stop the interview at any time you feel so

#### **Risks of the study**

The study is not associated with any significant risk; however, it takes the respondent's time to participate in it. The process may approximately be taking about 30 minutes of your time.

#### **Benefits**

There are no financial benefits for participating in this study. However, findings from this study are hoped to inform effective interventions to improve on WASH facilities among schools in Kyankwanzi district. Any questions about the study or in case you would like more information, please contact the principal investigator through the following address; *Wacha Julius*, Makerere University, School of Public Health [MakSPH].

#### **Statement of informed consent:**

I have read the above or the above have been read to me and I have understood the content there in. I hereby, on my own, consent on behalf of my child to participate in the study.

Signature/thumb print ..... Date .....

## Appendix II: Semi structured questionnaire for pupils

### Basic information

Name of data clerk \_\_\_\_\_ Questionnaire id number \_\_\_\_\_

<b>Section A: Socio-demographic characteristics of respondents</b>			
SN	VARIABLE	RESPONSE	SKIP
101	What is the name of the school?	_____	
102	What is your age in complete years?	_____	
103	In which class are you?	_____	
104	What is your religion?	1 Catholic 2 Muslim 3 Anglican 4 Pentecostal 5 Others .....	
105	What is the Sex of respondent?	1 Male 2 Female	
<b>Section B: access to water supply facilities</b>			
106	Do you have access to water	1 Yes 2 No	
107	Where do you collect water for drinking and other purposes	1 Rain water harvest tank 2 Borehole 3 Tap water 4 Others	
108	Do you face any delays	1 Yes 2 No	If no, go to 110
109	Type of delay	1 Far distance 2 Overcrowding 3 3.Low yield	

**Section C: utilisation of sanitation facilities**

110	Do you have pit latrine	1 Yes 2 No	
111	Do you use pit latrines 2-3 times	1 Yes 2 No	
112	Pit latrines cleaned daily	1 Yes 2 No	
113	Do you use urinals 2-3 times	1 Yes 2 No	
114	Give reasons why?	_____	
115	Are anal cleansing materials provided(course of the term)	1 Yes 2 No	
116	Anal cleansing materials provided	1 Toilet paper 2 Water 3 Others.....	
117	Location of anal cleansing materials	1 Classroom 2 Pit latrine	

**Section D: utilisation of hygiene facilities**

118	School provides HWF	1 Yes 2 No	If no, skip to 124
119	Location of HWF	1 Near pit latrine 2 Near kitchen 3 Compound	
120	Wash hands (2-3 times)	1 Yes 2 No	

121	When do you wash hands	1 after visiting pit latrine 2 before eating	
122	Do you wash hands with water only	1 Yes 2 No	
123	Do you wash hands with water and soap to?	1 Yes 2 No	
124	Have you attended all lessons	1 Yes 2 No	If no , answer 125
125	Reasons for absenteeism	_____	
126	Do you know any disease caused due to poor WASH facilities	1 Yes 2 No	
127	Mention the diseases	_____	

**Thank you for your time**



## **Appendix III: Key informant interview guide**

### **Title of the study**

**Barriers and facilitators to ownership, access and utilization of WASH facilities among public primary schools in Butemba sub-county, Kyankwanzi District.**

### **Brief introduction**

This section will help to gather more information about the issue under study from key informants who could be having adequate knowledge about the topic.

1. What do you understand by WASH-facilities?
2. What are some of the WASH facilities found at school?

#### **Probe:**

- i. for the different uses of the WASH facilities mentioned
- ii. do they serve their purpose?
- iii. how do pupils access and utilize the WASH facilities mentioned above?
3. What is your role as (position held) as far as provision of WASH facilities in school?
4. What do you think about the work you do as (mention title held)
5. What are some of the challenges (barriers) you experience as you help pupils access or utilize WASH facilities at school?
6. From your experience, what are some of the things we can do to address the challenges mentioned
7. Please share on some of the things (facilitators) that have made your work successful?
8. How can these successes be sustained?
9. Highlight some of the interventions in place to ensure operation and maintenance of the WASH facilities?

## Appendix IV: Observation checklist

School.....Address.....Date:.....

Please tick the appropriate box or fill in observation where required. Please tick only one entry unless otherwise stated.

SN	PARAMETER	STATUS
<b>WATER SUPPLY FACILITIES</b>		
1.	Availability of water source	1 Yes                      2 No
2.	Type of water sources	1 RWHT 2 Hand Pump Borehole 3 Piped water 4 Others .....
3.	Status	1 Improved 2 Un improved
4.	Siting in relation to latrine	1 More than 30meters 2 Less than 30meters
5.	Water source protected	1 Yes                      2 No
6.	Condition	1 Good 2 Satisfactory 3 Bad
7.	Functionality	1 Fully functional 2 Partially functional 3 Non-functional
<b>SANITATION FACILITIES</b>		
8.	Availability of sanitation facilities	1 Yes                      2 No
9.	Type of sanitary facilities	1 VIP latrines 2 ECOSAN 3 Others specify.....
10.	Type of urinals	1 Open channel 2 Flat-level concrete floor

		3 Others.....	
11.	Status	1 Improved	2 un improved
12.	Functionality	1 Fully functional 2 Partially functional 3 Nonfunctional	
13.	Conditions	1 Good 2 Satisfactory 3 Bad	
14.	Number of stances	Boys .....	Girls.....
15.	Stance for PWD	Boys.....	Girls.....
16.	Pupil stance ratio	Boys.....	Girls.....
17.	Separate latrine for staff,(male and female)	1 Provided 2 Not provided	
18.	No. stances	Male .....	Female.....
19.	Are facilities provided with privacy	1 Yes ,has doors and user completely invisible 2 No doors, user can be seen while using	
20.	Availability of anal cleaning materials	1 Yes	2 No
21.	Latrines with gender segregation	1 Yes	2 No
22.	Faecal matter on walls,floor,squate hole	1 Seen	2 Not seen
23.	General appearance of facilities/state of repair	1 Generally clean, good state of repair 2 Generally not clean, poor state of repair	
24.	Ramps for PWDs/young children	1 Provided	2 Not provided
25.	Siting of sanitation facilities from classroom	1 Within 60meters 2 Beyond 60meters	
<b>HYGIENE FACILITIES</b>			
26.	Availability of Hand washing facilities	1 Yes	2 No
27.	Location of HWF( <i>multiple answers</i> )	1 Within 5m at pit latrine 2 Beyond 5m of pit latrine 3 Near kitchen 4 Within the school compound	

28.	Type of HWF	1 Tippy tap 2 Small drum with stand(movable) 3 Other.....						
29.	Total number of HWF	.....						
30.	Functionality	<table border="1"> <tr> <td>1 Fully functional</td> <td>Number.....</td> </tr> <tr> <td>2 Partially functional</td> <td>Number.....</td> </tr> <tr> <td>3 Nonfunctional</td> <td>Number.....</td> </tr> </table>	1 Fully functional	Number.....	2 Partially functional	Number.....	3 Nonfunctional	Number.....
1 Fully functional	Number.....							
2 Partially functional	Number.....							
3 Nonfunctional	Number.....							
31.	Minimum number of pupils served HWF	.....						
32.	Condition	1 Good 2 Satisfactory 3 Bad						
33.	Menstrual Hygiene Management facilities	1 Available                      2 Not available						
34.	Management of Solid waste (garbage)	1 Rubbish pit 2 Burned 3 Others specify.....						

**Appendix V: Recommendation letter**